

AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior versions and listings of claims in this application.

LISTING OF CLAIMS:

1. (Previously Presented) An image processing apparatus comprising:
a halftone dot characteristic detecting section that detects a halftone dot characteristic indicative of a halftone dot in image data;
a first counter that counts the number of halftone dot characteristics that exist in a first region including a target pixel from among halftone dot characteristics detected by the halftone dot characteristic detecting section;
an edge pixel detecting section that detects a pixel belonging to an edge region based on image data;
a second counter that counts the number of edge pixels that exist in a second region including the target pixel from among edge pixels detected by the edge pixel detecting section;
a discriminator that discriminates whether or not a region that includes the target pixel is a character region in a halftone dot image based on the count result of the first counter and the count result of the second counter.
2. (Previously Presented) An image processing apparatus according to claim 1, wherein the edge pixel detecting section contains an edge detector that detects an edge quantity and, detects an internal edge pixel such that a positive edge detection quantity has been detected by the edge detector.

3. (Previously Presented) An image processing apparatus according to claim 1, wherein the discriminator discriminates that the target pixel belongs to a character region in a halftone dot image in case that the count value of the first counter is smaller than a first threshold and the count value of the second counter is greater than a second threshold.

4. (Original) An image processing apparatus according to claim 1 further including a continuity detecting section that detects whether or not an edge has continuity, wherein the discriminator discriminates whether or not the target pixel belongs to a character region in a halftone dot image taking into consideration a detection result of the continuity detecting section.

5. (Original) An image processing apparatus according to claim 1 further including a correction unit that corrects image data based on a discrimination result of the discriminator.

6. (Previously Presented) An image processing apparatus according to claim 1, wherein the halftone dot characteristic detecting section contains a filter that detects isolate points as halftone dot characteristics.

7. (Original) An image processing apparatus according to claim 1, wherein the number of pixels in the first region is greater than the number of pixels in the second region.

8. (Previously Presented) An image processing apparatus comprising:

- a first discrimination unit that discriminates whether or not each pixel of image data has a halftone dot characteristic indicative of a characteristic of a halftone dot image by using a first filter;
- a second discrimination unit that discriminates whether or not each pixel of image data is a pixel that belongs to an edge region by using a second filter;
- a first counter that counts the number of halftone dot characteristics that exist in a first pixel matrix consisting of a plurality of pixels containing a target pixel based on the discrimination result of the first discrimination unit;
- a second counter that counts the number of edge pixels that exist in a second pixel matrix consisting of a plurality of pixels containing the target pixel based on the discrimination result of the second discrimination unit;
- a discrimination unit that discriminates whether or not a region that includes the target pixel is a character region in a halftone dot image based on the count result of the first counter and the count result of the second counter; and
- an image processing unit that processes image data based on the discrimination result of the discrimination unit.

9. (Original) An image processing apparatus according to claim 8, wherein the second discrimination unit contains a discriminator that discriminates whether an edge region is an internal edge region or an external edge region, and pixels in an edge region the discriminator has discriminated an internal edge region is discriminated as edge pixels.

10. (Previously Presented) An image processing apparatus according to claim 8, wherein the discrimination unit discriminates that the target pixel belongs to a character region in a halftone dot image in case that a count value of the first counter is smaller than a first threshold and a count value of the second counter is greater than a second threshold.

11. (Original) An image processing apparatus according to claim 8 further including a continuity detecting section that detects whether or not an edge has continuity, wherein the discrimination unit discriminates whether or not the target pixel belongs to a character region in a halftone dot image taking into consideration a detection result of the continuity detecting section.

12. (Original) An image processing apparatus according to claim 8, wherein the first filter detects isolate points, and the first discrimination unit detects the isolation points as halftone dot characteristics.

13. (Original) An image processing apparatus according to claim 8, wherein the first pixel matrix is larger than the second pixel matrix.

14. (Previously Presented) An image processing method comprising:
a step 1 of discriminating whether or not each pixel of image data has a halftone dot characteristic indicative of a characteristic of a halftone dot image and discriminating whether or not each pixel of image data is an edge pixel that belongs to an edge region;

a step 2 of counting the number of halftone dot characteristics that exist in a first pixel matrix consisting of a plurality of pixels including a target pixel based on the discrimination result in the step 1 and counting the number of edge pixels that exist in a second pixel matrix consisting of a plurality of pixels including the target pixel;

a step 3 of discriminating whether or not a region that includes the target pixel is a character region in a halftone dot image based on the number of halftone dot characteristics and the number of edge pixels counted in the step 2; and

a step 4 of processing image data based on the discrimination result in the step 3.

15. (Previously Presented) An image processing apparatus according to claim 1, wherein the correction unit applies edge enhancement processing if the target pixel is in a character region in a halftone dot image.

16. (Previously Presented) An image processing apparatus according to claim 15, wherein the correction unit applies smoothing if the target pixel is in a region in a halftone dot image that is not a character region.

17. (Previously Presented) An image processing apparatus according to claim 1, wherein the first counter determines whether or not the target pixel in the first region belongs to a halftone dot region based on the count.

18. (Previously Presented) An image processing apparatus according to claim 8, wherein the first counter determines whether or not the target pixel in the first pixel matrix belongs to a halftone dot region based on the count.

19. (Previously Presented) An image processing method according to claim 14, wherein the number of halftone dot characteristics are counted to determine whether or not the target pixel in the first pixel matrix belongs to a halftone dot region.

20. (New) An image processing apparatus comprising:

- a halftone dot characteristic detecting section that detects isolation points as a halftone dot characteristic indicative of a halftone dot in image data;
- a first counter that counts the number of isolation points that exist in a first region including a target pixel from among isolation points detected by the halftone dot characteristic detecting section;
- an edge pixel detecting section that detects a pixel belonging to an edge region based on image data;
- a second counter that counts the number of edge pixels that exist in a second region including the target pixel from among edge pixels detected by the edge pixel detecting section;
- a discriminator that discriminates whether or not a region that includes the target pixel is a character region in a halftone dot image based on the count result of the first counter and the count result of the second counter.